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| 1. Write a program in C to store elements in an array and print it.   Test Data : Input 10 elements in the array : element - 0 : 1 element - 1 : 1 element - 2 : 2 ....... *Expected Output* : Elements in array are: 1 1 2 3 4 5 6 7 8 9   1. Write a program in C to read n number of values in an array and display it in reverse order.   Test Data : Input the number of elements to store in the array :3 Input 3 number of elements in the array : element - 0 : 2 element - 1 : 5 element - 2 : 7 *Expected Output* : The values store into the array are : 2 5 7 The values store into the array in reverse are : 7 5 2   1. Write a program in C to find the sum of all elements of the array.   Test Data : Input the number of elements to be stored in the array :3 Input 3 elements in the array : element - 0 : 2 element - 1 : 5 element - 2 : 8 *Expected Output* : Sum of all elements stored in the array is : 15  **4.** Write a program in C to copy the elements of one array into another array.  Test Data : Input the number of elements to be stored in the array :3 Input 3 elements in the array : element - 0 : 15 element - 1 : 10 element - 2 : 12 *Expected Output* : The elements stored in the first array are : 15 10 12 The elements copied into the second array are : 15 10 12  **5.** Write a program in C to count a total number of duplicate elements in an array.  Test Data : Input the number of elements to be stored in the array :3 Input 3 elements in the array : element - 0 : 5 element - 1 : 1 element - 2 : 1 *Expected Output* : Total number of duplicate elements found in the array is : 1  **6.** Write a program in C to print all unique elements in an array.  Test Data : Print all unique elements of an array: ------------------------------------------ Input the number of elements to be stored in the array: 4 Input 4 elements in the array : element - 0 : 3 element - 1 : 2 element - 2 : 2 element - 3 : 5 *Expected Output* : The unique elements found in the array are: 3 5  **7.** Write a program in C to merge two arrays of same size sorted in decending order.  Test Data : Input the number of elements to be stored in the first array :3 Input 3 elements in the array : element - 0 : 1 element - 1 : 2 element - 2 : 3 Input the number of elements to be stored in the second array :3 Input 3 elements in the array : element - 0 : 1 element - 1 : 2 element - 2 : 3 *Expected Output* : The merged array in decending order is : 3 3 2 2 1 1  **8.** Write a program in C to count the frequency of each element of an array.  Test Data : Input the number of elements to be stored in the array :3 Input 3 elements in the array : element - 0 : 25 element - 1 : 12 element - 2 : 43 *Expected Output* : The frequency of all elements of an array : 25 occurs 1 times 12 occurs 1 times 43 occurs 1 times  **9.** Write a program in C to find the maximum and minimum element in an array.  Test Data : Input the number of elements to be stored in the array :3 Input 3 elements in the array : element - 0 : 45 element - 1 : 25 element - 2 : 21 *Expected Output* : Maximum element is : 45 Minimum element is : 21  **10.** Write a program in C to separate odd and even integers in separate arrays.  Test Data : Input the number of elements to be stored in the array :5 Input 5 elements in the array : element - 0 : 25 element - 1 : 47 element - 2 : 42 element - 3 : 56 element - 4 : 32 *Expected Output* : The Even elements are : 42 56 32 The Odd elements are : 25 47  **11.** Write a program in C to sort elements of array in ascending order.  Test Data : Input the size of array : 5 Input 5 elements in the array : element - 0 : 2 element - 1 : 7 element - 2 : 4 element - 3 : 5 element - 4 : 9 *Expected Output* : Elements of array in sorted ascending order: 2 4 5 7 9  **12.** Write a program in C to sort elements of the array in descending order.  Test Data : Input the size of array : 3 Input 3 elements in the array : element - 0 : 5 element - 1 : 9 element - 2 : 1 *Expected Output* : Elements of the array in sorted descending order: 9 5 1  **13.** Write a program in C to insert New value in the array (sorted list )..  Test Data : Insert New value in the sorted array : ----------------------------------------- Input the size of array : 5 Input 5 elements in the array in ascending order: element - 0 : 2 element - 1 : 5 element - 2 : 7 element - 3 : 9 element - 4 : 11 Input the value to be inserted : 8 The exist array list is : 2 5 7 9 11 After Insert the list is : 2 5 7 8 9 11 -------------------------------- Process exited after 39.33 seconds with return value 10 Press any key to continue . . .  **14.** Write a program in C to insert New value in the array (unsorted list ).  Test Data : Input the size of array : 4 Input 4 elements in the array in ascending order: element - 0 : 1 element - 1 : 8 element - 2 : 7 element - 3 : 10 Input the value to be inserted : 5 Input the Position, where the value to be inserted :2 *Expected Output* : The current list of the array : 1 8 7 10 After Insert the element the new list is : 1 5 8 7 10  **15.** Write a program in C to delete an element at desired position from an array.  Test Data : Input the size of array : 5 Input 5 elements in the array in ascending order: element - 0 : 1 element - 1 : 2 element - 2 : 3 element - 3 : 4 element - 4 : 5 Input the position where to delete: 3 *Expected Output* : The new list is : 1 2 4 5  **16.** Write a program in C to find the second largest element in an array.  Test Data : Input the size of array : 5 Input 5 elements in the array : element - 0 : 2 element - 1 : 9 element - 2 : 1 element - 3 : 4 element - 4 : 6 *Expected Output* : The Second largest element in the array is : 6  **17.** Write a program in C to find the second smallest element in an array.  Test Data : Input the size of array : 5 Input 5 elements in the array (value must be <9999) : element - 0 : 0 element - 1 : 9 element - 2 : 4 element - 3 : 6 element - 4 : 5 *Expected Output* : The Second smallest element in the array is : 4  **18.** Write a program in C for a 2D array of size 3x3 and print the matrix.  Test Data : Input elements in the matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [0],[2] : 3 element - [1],[0] : 4 element - [1],[1] : 5 element - [1],[2] : 6 element - [2],[0] : 7 element - [2],[1] : 8 element - [2],[2] : 9 *Expected Output* : The matrix is :  1 2 3 4 5 6 7 8 9  **19.** Write a program in C for addition of two Matrices of same size.  Test Data : Input the size of the square matrix (less than 5): 2 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 Input elements in the second matrix : element - [0],[0] : 5 element - [0],[1] : 6 element - [1],[0] : 7 element - [1],[1] : 8 *Expected Output* : The First matrix is :  1 2 3 4 The Second matrix is :  5 6 7 8 The Addition of two matrix is :  6 8 10 12  **20.** Write a program in C for subtraction of two Matrices.  Test Data : Input the size of the square matrix (less than 5): 2 Input elements in the first matrix : element - [0],[0] : 5 element - [0],[1] : 6 element - [1],[0] : 7 element - [1],[1] : 8 Input elements in the second matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 *Expected Output* : The First matrix is :  5 6 7 8 The Second matrix is :  1 2 3 4 The Subtraction of two matrix is :  4 4 4 4  **21.** Write a program in C for multiplication of two square Matrices.  Test Data : Input the rows and columns of first matrix : 2 2 Input the rows and columns of second matrix : 2 2 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 Input elements in the second matrix : element - [0],[0] : 5 element - [0],[1] : 6 element - [1],[0] : 7 element - [1],[1] : 8 *Expected Output* : The First matrix is :  1 2 3 4 The Second matrix is :  5 6 7 8 The multiplication of two matrix is :  19 22 43 50  **22.** Write a program in C to find transpose of a given matrix.  Test Data : Input the rows and columns of the matrix : 2 2 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 *Expected Output* : The matrix is :  1 2 3 4  The transpose of a matrix is : 1 3 2 4  **23.** Write a program in C to find sum of right diagonals of a matrix. Test Data : Input the size of the square matrix : 2 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 *Expected Output* : The matrix is : 1 2 3 4 Addition of the right Diagonal elements is :5 Elements in array are:  **24.** Write a program in C to find the sum of left diagonals of a matrix.  Test Data : Input the size of the square matrix : 2 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 *Expected Output* : The matrix is : 1 2 3 4 Addition of the left Diagonal elements is :5  **25.** Write a program in C to find sum of rows an columns of a Matrix.  Test Data : Input the size of the square matrix : 2 Input elements in the first matrix : element - [0],[0] : 5 element - [0],[1] : 6 element - [1],[0] : 7 element - [1],[1] : 8 *Expected Output* : The First matrix is : The matrix is : 5 6 7 8 The sum or rows and columns of the matrix is : 5 6 11 7 8 15  12 14  **26.** Write a program in C to print or display the lower triangular of a given matrix.  Test Data : Input the size of the square matrix : 3 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [0],[2] : 3 element - [1],[0] : 4 element - [1],[1] : 5 element - [1],[2] : 6 element - [2],[0] : 7 element - [2],[1] : 8 element - [2],[2] : 9 *Expected Output* : The matrix is : 1 2 3 4 5 6 7 8 9  Setting zero in lower triangular matrix  1 2 3 0 5 6 0 0 9  **27.** Write a program in C to print or display upper triangular matrix.  Test Data : Input the size of the square matrix : 3 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [0],[2] : 3 element - [1],[0] : 4 element - [1],[1] : 5 element - [1],[2] : 6 element - [2],[0] : 7 element - [2],[1] : 8 element - [2],[2] : 9 *Expected Output* : The matrix is : 1 2 3 4 5 6 7 8 9  Setting zero in upper triangular matrix  1 0 0 4 5 0 7 8 9  **28.** Write a program in C to calculate determinant of a 3 x 3 matrix.  Test Data : Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 0 element - [0],[2] : -1 element - [1],[0] : 0 element - [1],[1] : 0 element - [1],[2] : 1 element - [2],[0] : -1 element - [2],[1] : -1 element - [2],[2] : 0 *Expected Output* : The matrix is : 1 0 -1 0 0 1 -1 -1 0  The Determinant of the matrix is: 1  **29.** Write a program in C to accept a matrix and determine whether it is a sparse matrix.  Test Data : Input the number of rows of the matrix : 2 Input the number of columns of the matrix : 2 Input elements in the first matrix : element - [0],[0] : 0 element - [0],[1] : 0 element - [1],[0] : 1 element - [1],[1] : 0 *Expected Output* : The given matrix is sparse matrix. There are 3 number of zeros in the matrix  **30.** Write a program in C to accept two matrices and check whether they are equal.  Test Data : Input Rows and Columns of the 1st matrix :2 2 Input Rows and Columns of the 2nd matrix :2 2 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 Input elements in the second matrix : element - [0],[0] : 1 element - [0],[1] : 2 element - [1],[0] : 3 element - [1],[1] : 4 *Expected Output* : The first matrix is : 1 2 3 4 The second matrix is : 1 2 3 4 The Matrices can be compared : Two matrices are equal.  **31.** Write a program in C to check whether a given matrix is an identity matrix.  Test Data : Input number of Rows for the matrix :3 Input number of Columns for the matrix :3 Input elements in the first matrix : element - [0],[0] : 1 element - [0],[1] : 0 element - [0],[2] : 0 element - [1],[0] : 0 element - [1],[1] : 1 element - [1],[2] : 0 element - [2],[0] : 0 element - [2],[1] : 0 element - [2],[2] : 1 *Expected Output* : The matrix is : 1 0 0 0 1 0 0 0 1 The matrix is an identity matrix.  **32.** Write a program in C to find a pair with given sum in the array.  *Expected Output* : The given array : 6 8 4 -5 7 9 The given sum : 15 Pair of elements can make the given sum by the value of index 0 and 5  **33.** Write a program in C to find the majority element of an array.  A majority element in an array A[] of size n is an element that appears more than n/2 times (and hence there is at most one such element). *Expected Output* : The given array is : 4 8 4 6 7 4 4 8 There are no Majority Elements in the given array.  **34.** Write a program in C to find the number occurring odd number of times in an array.  All numbers occur even number of times except one number which occurs odd number of times. *Expected Output* : The given array is : 8 3 8 5 4 3 4 3 5 The element odd number of times is : 3  **35.** Write a program in C to find the largest sum of contiguous subarray of an array.  *Expected Output* : The given array is : 8 3 8 -5 4 3 -4 3 5 The largest sum of contiguous subarray is : 21  **36.** Write a program in C to find the missing number from a given array. There are no duplicates in list.  *Expected Output* : The given array is : 1 3 4 2 5 6 9 8 The missing number is : 7  **37.** Write a program in C to find the pivot element of a sorted and rotated array using binary search.  Pivot element is the only element in input array which is smaller than it's previous element. A pivot element divided a sorted rotated array into two monotonically increasing array. *Expected Output* : The given array is : 14 23 7 9 3 6 18 22 16 36 The Pivot Element in the array is : 3  **38.** Write a program in C to merge one sorted array into another sorted array.  Pivot element is the only element in input array which is smaller than it's previous element. A pivot element divided a sorted rotated array into two monotonically increasing array. *Expected Output* : The given Large Array is : 10 12 14 16 18 20 22 The given Small Array is : 11 13 15 17 19 21 After merged the new Array is : 10 11 12 13 14 15 16 17 18 19 20 21 22  **39.** Write a program in C to rotate an array by N positions.  *Expected Output* : The given array is : 0 3 6 9 12 14 18 20 22 25 27 From 4th position the values of the array are : 12 14 18 20 22 25 27 Before 4th position the values of the array are : 0 3 6 9 After rotating from 4th position the array is: 12 14 18 20 22 25 27 0 3 6 9  **40.** Write a program in C to find the ceiling in a sorted array.  N.B.: Given a sorted array in ascending order and a value x, the ceiling of x is the smallest element in array greater than or equal to x, and the floor is the greatest element smaller than or equal to x. *Expected Output* : The given array is : 1 3 4 7 8 9 9 10 The ceiling of 5 is: 7  **41.** Write a program in C to find the Floor and Ceil of the number 0 to 10 from a sroted array.  *Expected Output* : The given array is : 1 3 5 7 8 9 Number: 0 ceiling is: 1 floor is: -1 Number: 1 ceiling is: 1 floor is: 1 Number: 2 ceiling is: 3 floor is: 1 Number: 3 ceiling is: 3 floor is: 3 Number: 4 ceiling is: 5 floor is: 3 Number: 5 ceiling is: 5 floor is: 5 Number: 6 ceiling is: 7 floor is: 5 Number: 7 ceiling is: 7 floor is: 7 Number: 8 ceiling is: 8 floor is: 8 Number: 9 ceiling is: 9 floor is: 9 Number: 10 ceiling is: -1 floor is: 9  **42.** Write a program in C to find the smallest missing element from a sorted array.  *Expected Output* : The given array is : 0 1 3 4 5 6 7 9 The missing smallest element is: 2  **43.** Write a program in C to to print next greater elements in a given unsorted array. Elements for which no greater element exist, consider next greater element as -1.  *Expected Output* : The given array is : 5 3 10 9 6 13 Next Bigger Elements are: Next bigger element of 5 in the array is: 10 Next bigger element of 3 in the array is: 10 Next bigger element of 10 in the array is: 13 Next bigger element of 9 in the array is: 13 Next bigger element of 6 in the array is: 13 Next bigger element of 13 in the array is: -1 Next Bigger Elements Array: 10 10 13 13 13 -1  **44.** Write a program in C to find the two repeating elements in a given array.  *Expected Output* : The given array is : 2 7 4 7 8 3 4 The repeating elements are: 7 4  **45.** Write a program in C to find two elements whose sum is closest to zero.  *Expected Output* : The given array is : 38 44 63 -51 -35 19 84 -69 4 -46 The Pair of elements whose sum is minimum are: [44, -46]  **46.** Write a program in C to find the smallest positive number missing from an unsorted array.  *Expected Output* : The given array is : 3 1 4 10 -5 15 2 -10 -20 The smallest positive number missed is: 5  **47.** Write a program in C to find a subarray with given sum from the given array.  *Expected Output* : The given array is : 3 4 -7 1 3 3 1 -4 [0..1] -- { 3 4 } [0..5] -- { 3 4 -7 1 3 3 } [3..5] -- { 1 3 3 } [4..6] -- { 3 3 1 }  **48.** Write a program in C to find if a given integer x appears more than n/2 times in a sorted array of n integers.  *Expected Output* : The given array is : 1 3 3 5 4 3 2 3 3 The given value is : 3 3 appears more than 4 times in the given array[]  **49.** Write a program in C to find majority element of an array.  *Expected Output* : The given array is : 1 3 3 7 4 3 2 3 3 The majority of the Element : 3  **50.** Write a program in C to print a matrix in spiral form.  *Expected Output* : The given array in matrix form is : 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 The spiral form of above matrix is: 1 2 3 4 5 10 15 20 19 18 17 16 11 6 7 8 9 14 13 12  **51.** Write a program in C to find the maximum circular subarray sum of a given array.  *Expected Output* : The given array is : 10 8 -20 5 -3 -5 10 -13 11 The maximum circular sum in the above array is: 29  **52.** Write a program in C to count the number of triangles can be fromed from a given array.  *Expected Output* : The given array is : 6 18 9 7 10 Number of possible triangles can be formed from the array is: 5  **53.** Write a program in C to find the number of times (frequency) occurs a given number in an array.  *Expected Output* : The given array is : 2 3 4 4 4 4 5 5 5 6 7 7 The number of times the number 4 occurs in the given array is: 4  **54.** Write a program in C to sort an array of 0s, 1s and 2s.  *Expected Output* : The given array is : 0 1 2 2 1 0 0 2 0 1 1 0 After sortig the elements in the array are: 0 0 0 0 0 1 1 1 1 2 2 2  **55.** Write a program in C to check whether an array is subset of another array.  *Expected Output* : The given first array is : 4 8 7 11 6 9 5 0 2 The given second array is : 5 4 2 0 6 The second array is the subset of first array.  **56.** Write a program in C to return the minimum number of jumps to reach the end of the array.  *Expected Output* : The given array is : 1 3 5 8 9 2 6 7 6 8 9 1 1 1 The minimum of number of jumps is required to reach the end is: 3  **57.** Write a program in C to find minimum element in a sorted and rotated array.  *Expected Output* : The given array is : 3 4 5 6 7 9 2 The minimum element in the above array is: 2  **58.** Write a program in C to move all zeroes to the end of a given array.  *Expected Output* : The given array is : 2 5 7 0 4 0 7 -5 8 0 The new array is: 2 5 7 8 4 -5 7 0 0 0  **59.** Write a program in C to return the counting sort on an array.  *Expected Output* : The given array is : 4 14 8 0 2 5 2 1 0 17 9 0 5 After sorting the elements in the array are: 0 0 0 1 2 2 4 5 5 8 9 14 17  **60.** Write a program in C to find the row with maximum number of 1s.  *Expected Output* : The given 2D array is : 0 1 0 1 1 1 1 1 1 1 1 0 0 1 0 0 0 0 0 0 1 0 0 0 1 The index of row with maximum 1s is: 1  **61.** Write a program in C to find maximum product subarray in a given array.  *Expected Output* : The given array is : -4 9 -7 0 -15 6 2 -3 The maximum product of a sub-array in the given array is: 540  **62.** Write a program in C to find the largest subarray with equal number of 0s and 1s.  *Expected Output* : The given array is : 0 1 0 0 1 1 0 1 1 1 Subarray found from the index 0 to 7  **63.** Write a program in C to replace every element with the greatest element on its right side.  *Expected Output* : The given array is : 7 5 8 9 6 8 5 7 4 6 After replace the modified array is: 9 9 9 8 8 7 7 6 6 0  **64.** Write a program in C to find the median of two sorted arrays of same size.  *Expected Output* : The given array - 1 is : 1 5 13 24 35 The given array - 2 is : 3 8 15 17 32 The Median of the 2 sorted arrays is: 14  **65.** Write a program in C to find the product of an array such that product is equal to the product of all the elements of arr[] except arr[i].  *Expected Output* : The given array is : 1 2 3 4 5 6 The product array is: 720 360 240 180 144 120  **66.** Write a program in C to count the number of inversion in a given array.  *Expected Output* : The given array is : 1 9 6 4 5 The inversions are: (9, 6) (9, 4) (9, 5) (6, 4) (6, 5) The number of inversion can be formed from the array is: 5  **67.** Write a program in C to search an element in a row wise and column wise sorted matrix.  *Expected Output* : The given array in matrix form is : 15 23 31 39 18 26 36 43 25 28 37 48 30 34 39 50 The given value for searching is: 37 The element Found at the position in the matrix is: 2, 2  **68.** Write a program in C to return maximum sum such that no two elements are adjacent.  *Expected Output* : The given array is : 1 3 5 9 7 10 1 10 100 The maximum sum from the array such that no two elements are adjacent is: 122  **69.** Write a program in C to find out the maximum difference between any two elements such that larger element appears after the smaller number.  *Expected Output* : The given array is : 7 9 5 6 13 2 The elements which provide maximum difference is: 5, 13 The Maximum difference between two elements in the array is: 8  **70.** Write a program in C to find two numbers that occur odd number of times in an array.  *Expected Output*: The given array is: 6 7 3 6 8 7 6 8 3 3 The two numbers occuring odd number of times are: 3 & 6  **71.** Write a program in C to find the median of two sorted arrays of different size.  *Expected Output*: The given first array is : 90 240 300 The given second array is : 10 13 14 20 25 The median of two different size arrays are : 22.500000  **72.** Write a program in C to return only the unique rows from a given binary matrix.  *Expected Output*: The given array is : 0 1 0 0 1 1 0 1 1 0 0 1 0 0 1 1 0 1 0 0 The unique rows of the given array are : 0 1 0 0 1 1 0 1 1 0 1 0 1 0 0  **73.** Write a program in C to print all unique elements of an unsorted array.  *Expected Output*: The given array is : 1 5 8 5 7 3 2 4 1 6 2 Unique Elements in the given array are: 1 5 8 7 3 2 4 6  **74.** Write a program in C to find the sum of upper triangular elements of a matrix.  *Expected Output*: The given array is : 1 2 3 4 5 6 7 8 9 The elements being summed of the upper triangular matrix are: 2 3 6 The Sum of the upper triangular Matrix Elements are: 11  **75.** Write a program in C to find the sum of lower triangular elements of a matrix.  *Expected Output*: The given array is : 1 2 3 4 5 6 7 8 9 The elements being summed of the lower triangular matrix are: 4 7 8 The Sum of the lower triangular Matrix Elements are: 19  **76.** Write a program in C to find largest number possible from the set of given numbers.  *Expected Output*: The given numbers are : 15 628 971 9 2143 12 The largest possible number by the given numbers are: 997162821431512  **77.** Write a program in C to generate a random permutation of array elements.  *Expected Output*: The given array is: 1 2 3 4 5 6 7 8 The shuffled elements in the array are: 2 8 7 3 4 5 1 6  **78.** Write a program in C to find four array elements whose sum is equal to given number.  *Expected Output*: The given array is: 3 7 1 9 15 14 6 2 5 7 The elements are: 3, 15, 14, 5  **79.** Write a program in C to sort n numbers in range from 0 to n^2.  *Expected Output*: The given array is: 37 62 52 7 48 3 15 61 Sorted array is: 3 7 15 37 48 52 61 62  **80.** Write a program in C to count all distinct pairs for a specific difference.  *Expected Output*: The given array is: 5 2 3 7 6 4 9 8 The distinct pairs for difference 5 are: [7, 2] [8, 3] [9, 4] Number of distinct pairs for difference 5 are: 3  **81.** Write a program in C to find the maximum repeating number in a given array.  The array range is [0..n-1] and the elements are in the range [0..k-1] and k<=n.. *Expected Output*: The given array is: 2 3 3 5 3 4 1 7 7 7 7 The maximum repeating number is: 7  **82.** Write a program in C to print all possible combinations of r elements in a given array.  *Expected Output*: The given array is: 1 5 4 6 8 The combination from by the number of elements are: 4 The combinations are: 1 5 4 6 1 5 4 8 1 5 6 8 1 4 6 8 5 4 6 8  **83.** Write a program in C to find a pair with the given difference.  *Expected Output*: The given array is: 1 15 39 75 92 The given difference is: 53 The pair are: (39, 92)  **84.** Write a program in C to find the minimum distance between two numbers in a given array.  *Expected Output*: The given array is: 7 9 5 11 7 4 12 6 2 11 The minimum distance between 7 and 11 is: 1  **85.** Write a program in C to Count all possible paths from top left to bottom right of a m X n matrix. *Expected Output*: The size of matrix is : 4 x 4 The all possible paths from top left to bottom right is: 20  **86.** Write a program in C find the equilibrium index of an array.  *Expected Output*: The given array is: 0 -4 7 -4 -2 6 -3 0 The equilibrium index found at : 7 5 0  **87.** Write a program in C to find the maximum element in an array which is first increasing and then decreasing.  *Expected Output*: The given array is: 2 7 12 25 4 57 27 44 The maximum element which is increasing then decreasing is: 57  **88.** Write a program in C to find the maximum n – m such that array[n] > array[m] from a given array[].  Given an array arr[], find the maximum j – i such that arr[j] > arr[i] *Expected Output*: The given array is: 7 5 8 2 3 2 4 2 1 0 m = 0, n = 2, arr1[m] = 7 arr1[n] = 8 difference = 2 m = 3, n = 6, arr1[m] = 2 arr1[n] = 4 difference = 3 The maximum differcences between two position of array index is: 3  **89.** Write a program in C to find maximum size square sub-matrix with all 1s.  *Expected Output*: The given array in matrix form is : 0 1 0 1 1 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 1 0 1 0 1 0 The maximum size sub-matrix is: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  **90.** Given an array of size n such that every element is in the range from 0 to n-1. Write a program in C to rearrange the given array so that arr[i] becomes arr[arr[i]].  *Expected Output*: The Original array is 2 1 4 3 0 The modified array is: 4 1 0 3 2  **91.**Given an unsorted array of specific size. Write a program in C to find the minimum length of subarray such that, sorting this subarray makes the whole array sorted. *Expected Output*: The given array is: 10 12 15 17 28 32 42 18 56 59 67 The minimum length of unsorted subarray which makes the given array sorted lies between the indeces 4 and 7  **92.** Write a program in C that checks whether the elements in an unsorted array appears consecutively or not.  *Expected Output*: The given array is: 7 4 3 5 6 2 The appearence of elements in the array are consecutive. The given array is: 7 4 4 5 6 2 The appearence of elements in the array are not consecutive. The given array is: 7 4 9 5 6 3 The appearence of elements in the array are not consecutive.  **93.** Write a program in C to rearrange positive and negative numbers alternatively in a given array. N.B.: If positive numbers are more they appear at the end and for also negative numbers, they too appear in the end of the array. *Expected Output*: The given array is: -4 8 -5 -6 5 -9 7 1 -21 -11 19 The rearranged array is: -4 7 -5 1 -21 5 -11 8 -9 19 -6  **94.** Write a program in C to find the maximum for each and every contigious subarray of size k from a given array. *Expected Output*: The given array is: 1 3 6 21 4 9 12 3 16 10 The length of each subarray is: 4 The contigious subarray of length 4 and their maximum value are: 1 3 6 21 ----> 21 3 6 21 4 ----> 21 6 21 4 9 ----> 21 21 4 9 12 ----> 21 4 9 12 3 ----> 12 9 12 3 16 ----> 16 12 3 16 10 ----> 16  **95.** Write a program in C to segregate 0s and 1s in an array.  *Expected Output*: The given array is: 1 0 1 0 0 1 0 1 1 The array after segregation is: 0 0 0 0 1 1 1 1 1  **96.** Write a program in C to segregate even and odd elements on an array.  *Expected Output*: The given array is: 17 42 19 7 27 24 30 54 73 The array after segregation is: 54 42 30 24 27 7 19 17 73  **97.** Write a program in C to find the index of first peak element in a given array.  *Expected Output*: The given array is: 5 12 13 20 16 19 11 7 25 The index of first peak element in the array is: 3  **98.** Write a program in C to return the largest span found in the leftmost and rightmost appearances of same value(values are inclusive) in a given array.  *Expected Output*: The given array is: 17 42 19 7 27 24 17 54 73 The span between the same values in the array is: 7  **99.** Write a program in C to check if an array can be splitted in such a position that, the sum of left side of the splitting is equal to the sum of the right side.  *Expected Output*: The given array is : 1 3 3 8 4 3 2 3 3 The array can be split in a position where the sum of both side are equal.  **100.** Write a program in C to return the number of clumps(a series of 2 or more adjacent elements of the same value) in a given array.  *Expected Output*: The given array is: 17 42 42 7 24 24 17 54 17 The number of clumps in the array is: 2  **101.** Write a program in C to rearrange an array such that arr[i]=i.  N.B.: Given array contains N elements, from 0 to N – 1. All elements within the range may not be present in the array. There will be -1 if an element within the range is not present in the array.  *Expected Output*: The given array is: 2 5 -1 6 -1 8 7 -1 9 1 The new array is: -1 1 2 -1 -1 5 6 7 8 9  **102.** Write a program in C to rearrange an array in such an order that– smallest, largest, 2nd smallest, 2nd largest and on.  *Expected Output*: The given array is: 5 8 1 4 2 9 3 7 6 The new array is: 1 9 2 8 3 7 4 6 5  **103.** Write a program in C to update every array element with multiplication of previous and next numbers in array.  *Expected Output*: The given array is: 1 2 3 4 5 6 The new array is: 2 3 8 15 24 30  **104.** Write a program in C to rearrange an array such that even index elements are smaller and odd index elements are greater than their next.  *Expected Output*: The array given is: 6 4 2 1 8 3 The new array after rearranging: 4 6 1 8 2 3  **105.** Write a program in C to find minimum number of swaps required to gather all elements less than or equals to k.  *Expected Output*: The given array is: 2 7 9 5 8 7 4 The minimum swap required is: 2  **106.** Write a program in C to convert the array in such a way that double its value and replace the next number with 0 if current and next element are same and rearrange the array such that all 0's shifted to the end.  *Expected Output*: The given array is: 0 3 3 3 0 0 7 7 0 9 The new array is: 6 3 14 9 0 0 0 0 0 0   1. ***Take an array of 10 elements, fill it with random numbers and then reverse array without using any second array.*** 2. ***Delete the element at the given position from an array of 10 elements and fill the last element with 0.*** 3. ***Read numbers from keyboard and copy them into an array of 5 elements. Make sure only positive numbers are copied into array and negative numbers are ignored.*** 4. ***Print all even numbers of an array of 10 elements first and then odd numbers.*** |

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